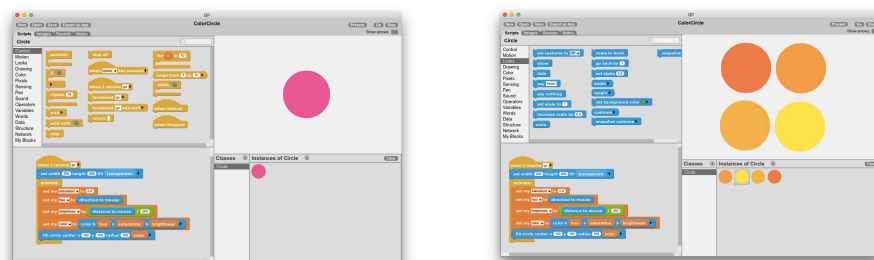




# Lesson Plan | Make an Interactive Color Circle

## WHAT IS GP?

GP is a free, general-purpose blocks programming language (similar to MIT's Scratch) that is powerful yet easy to learn. This lesson plan is designed to provide educators with the resources and information they need to teach the GP's Make a Color Circle [Hour of Code](#) Tutorial.



## WHO IS GP FOR?

**Grades 6+** | This tutorial is designed for students with some CS experience. It can also be used as an extension of the [Make Your Own Paint Editor](#) tutorial.

GP is an excellent vehicle for learning and teaching computer science and there is something for beginners and experts alike. GP is a natural next step for those who have used Scratch. It can be used to teach computer science in grades 6-12 or at the college level. GP is also intended for anyone who wants to make their own app but is not fluent with the complex languages and tools designed for professional software developers.

## LEARNING OBJECTIVES

Participants will:

- create a customizable color circle
- control the hue, saturation, and brightness of the color circle using the mouse
- remix the tutorial to add interesting elements to the project

## MATERIALS & RESOURCES

- One minute [video overview](#) of GP
- Introduction to GP and [User Interface Guide](#)
- Make a Color Circle [Video Tutorial](#)
- Make a Color Circle [2-Page Tutorial](#)
- [Student Resource](#) available on the GP Website
- [Certificates](#) for students from Hour of Code
- Completed project is available in the GP download. Choose Open > Project Starters > ColorCircle.gpp

\*Please note that all videos are also available on the [GP website](#).

## TECHNICAL RECOMMENDATIONS

- GP runs in the browser on Windows, Mac, Linux, and Chromebooks. Here is the browser URL: [gpblocks.org/run/gp.html](http://gpblocks.org/run/gp.html)
- NOTE: For ease of setup for the hour of code tutorial, we recommend running GP in your web browser. Please note that GP is slower in the browser than in its native environment. If you wish to download GP, [please visit our website](#). The GP download is a ZIP-ed folder containing executables for all supported platforms (Windows, Macintosh, and Linux).



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## Procedure

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### INTRODUCE THE HOUR OF CODE & GP (5-8 mins)

- For resources on introducing the Hour of Code, visit <https://hourofcode.com/us>
- Explain: you will create a customizable color circle using GP, a blocks-based programming language. Show the [GP Overview Video](#) to introduce the activity.
- Ask students: what did you notice? Responses may include:
  - You can change the way pictures look (manipulate the pixels of an image)
  - You can draw, construct simulations, make music, and create art
- Explain: GP is a blocks-based programming language and a natural next step for those who have used Scratch. GP can generate high-quality graphics computationally, manipulate images and sounds, analyze text files or CSV data sets, simulate physical, biological, or economic systems, access the web and use cloud data, and deploy projects on the web or as stand-alone apps.
- Direct students to [gpblocks.org/run/gp.html](http://gpblocks.org/run/gp.html) and provided printed or digital copies of this [pdf](#).

### ACTIVITY (20-40 mins)

- Students work using the instructions in the tutorial to make a customizable color circle. They will create variables to control the hue, saturation, and brightness of the color in the circle.
- Here is some language for introducing the HSB color model if new to students: *Hue (0 to 360) refers to the actual color. Brightness (0.0 to 1.0) refers to how light or dark the color is; that is, how much light it emits or reflects. Saturation (0.0 to 1.0) is how “pure” the color is compared to a gray of the same brightness. High saturations yield strong, intense colors while low saturations yield pastels or tinted grays.*
- Encourage students to work in pairs and share their understandings and discoveries.
- After students complete the instructions in the tutorial, challenge them to remix their color circles to make something cool!
- Students can explore other art projects and more by using the additional resources available on the [GP Resources](#) page.

### REFLECTION (5-10 mins)

- Ask students to share what remixes and elements they added to their projects.
- Ask students to share a red, yellow, and green for the activity:
  - Green: what went well?
  - Yellow: what are you curious/confused/neutral about?
  - Red: what could be improved?
- [Green/Red/Yellow](#) worksheet

### OTHER IDEAS FOR REFLECTION

- Gallery walk: students move around to look at peer work
- Rose/Thorn or Plus/Delta: ask students to reflect individually, in partners, or as a group as to a highlight and a frustration of the tutorial
- [Exit Ticket](#) from the Hour of Code team

### BEYOND ONE HOUR

See additional resources including more project tutorials and videos at [gpblocks.org](http://gpblocks.org)

We want to hear from you and your students:  
Please email us at [gpteam@gpblocks.org](mailto:gpteam@gpblocks.org) to share your Hour of Code experience!